

**REMARKS**

This application relates to combinations of crop protection agents with polymeric cationic auxiliaries which permit for a controlled release of an active compound.

Claims 1-43 are currently pending in this application. Claims 1-8 and 11-16 have been amended, without prejudice, and new claims 17-43 added, in order to advance prosecution and not for reasons related to patentability under 35 U.S.C. §102 or 103 and, thus, do not prevent the application of the doctrine of equivalents. No new matter has been added and the claims have not been narrowed. Applicants reserve the right to pursue cancelled subject matter in a continuation application.

Claims 1-5, 7, 8 and 11-16 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite; and claims 11 and 13 were rejected under 35 U.S.C. §101 as allegedly not being directed to statutory subject matter. The rejections will be addressed collectively and are respectfully traversed.

The amendments to the claims, and the addition of the new claims, have rendered the instant rejections moot.

Consequently, reconsideration and withdrawal of the Section 101 and 112 rejections are respectfully requested.

Claims 1-3, 5-7 and 9-16 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,428,000 to Innami et al. ("Innami") in view of WO 200000031 to Rueegg ("Rueegg"). The rejection is respectfully traversed.

The rejection does not establish a *prima facie* case of obviousness as the references, alone or in combination, do not suggest the instantly claimed invention. Moreover, even if the Office Action was so holding, the data in the specification clearly rebuts any holding that the inventive

combinations are *prima facie* obvious over the prior art publications. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Claim 1 provides for a combination comprising an anionic agrochemically active compound and a cationic polymer having a main chain, said compound and said polymer electrostatically interacting with each other, wherein at least part of said polymer is constructed of monomer units comprising cationic groups comprising quaternary nitrogen atoms, wherein the percentage of monomer units which do not contain any cationic groups is at most 90% by weight, and the molecular weight of the polymers is  $< 10,000$  if the quaternary nitrogen atoms are arranged exclusively outside the main chain of the polymer. Applicants discovered that "problems such as poor selectivity, insufficient crop compatibility or reduced activity caused by antagonism can be avoided by combining certain cationic polymers with one or more agrochemically active compounds" (Specification, at page 3, lines 1-4). Applicants also discovered that undesirable harmful organisms can be controlled by applying the combination of the instant invention. (Specification, at page 3, lines 6-8).

The rejection relies upon the combination of two disparate documents in order to formulate an obviousness rejection (Office Action at 2-3). Specifically, the rejection relies on Innami as allegedly teaching a method of controlling weed growth comprising applying to the weeds a herbicide composition comprising fluazifop, water, adjuvants and cationic polymer (*see* abstract, column 6, line 49-column 7, line 18, and column 46, lines 1-68). The Office Action concedes, however, that Innami does not teach the composition/method comprising the safener, mefenpyr-diethyl and the instant percentages and molecular weights. Rueegg is relied upon as allegedly teaching a herbicidal composition/method comprising mefenpyr-diethyl in the abstract

of the reference. Applicants respectfully disagree as the cited references, alone or in any combination, fail to suggest the instantly claimed invention.

Specifically, the portions of the references cited in the Office Action do not teach or disclose, for example, a combination comprising an anionic agrochemically active compound and a cationic polymer having a main chain, said compound and said polymer electrostatically interacting with each other, wherein at least part of said polymer is constructed of monomer units comprising cationic groups comprising quaternary nitrogen atoms, wherein the percentage of monomer units which do not contain any cationic groups is at most 90% by weight, and the molecular weight of the polymers is  $< 10,000$  if the quaternary nitrogen atoms are arranged exclusively outside the main chain of the polymer.

Applicants' invention is clearly distinguishable from the references cited in the Office Action. Neither reference teaches or suggests, for example, a combination comprising an anionic agrochemically active compound and a cationic polymer having a main chain, wherein the percentage of monomer units which do not contain any cationic groups is at most 90% by weight, and the molecular weight of the polymers is  $< 10,000$  if the quaternary nitrogen atoms are arranged exclusively outside the main chain of the polymer. Thus, the combination of these references, each of which fails to teach or suggest an element of the claimed invention, can not, by law, render the instant invention obvious.

Indeed, the state of the law in the Federal Circuit requires that the suggestion or motivation to practice the claimed invention must be present in the cited art, and not gleaned from Applicants' specification. In the instant case, and contrary to the allegations in the Office Action, the only suggestion or motivation is in Applicants' invention.

In fact, the mere fact that references can be combined does not render the resultant combination obvious unless the prior art also suggest the desirability of the combination. *In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990). At most, the combination may amount to, *arguendo*, "obvious to try," and the PTO is well aware that such a standard cannot be a basis for obviousness.

Furthermore, the instant Examples indicate that increased selectivity and reduced phytotoxicity were observed, thus, rebutting any holding of *prima facie* obviousness. For example, Example 1 shows that iodosulfuron-methyl sodium salt in combination with Mirapol® A15 resulted in increased selectivity and reduced phytotoxicity at comparable herbicidal action as compared to application of iodosulfuron-methyl sodium salt alone. Similarly, Example 5 shows that Hussar ® OF when combined with Mirapol ® A15 in a mixture with Genapol® LRO resulted in increased activity and strongly reduced phytotoxicity and better selectivity under stress as compared to application of Hussar® in a mixture with Genapol®. Comparable results were observed in the other Examples. Therefore, even if it was so held that a person with ordinary skill in the art would have been motivated to combine components recited in the prior publications, a point Applicants do not concede, the data in the specification clearly rebut such a holding since the prior publications, taken in any combination, do not suggest that the inventive combination would exhibit such increased selectivity and reduced phytotoxicity. The claimed combinations are, thus, unobvious.

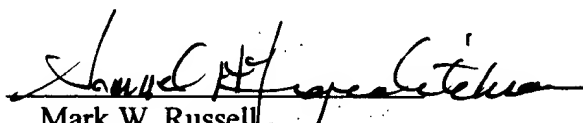
Consequently, even if a *prima facie* case of obviousness were established, a point Applicants do not concede, the data in the specification clearly rebuts such a holding and the rejections of the claims should be removed accordingly.

Pursuant to the provisions of 37 C.F.R. 1.136(a), Applicants petition the Assistant Commissioner to extend the time period for Applicants to respond to the outstanding Office Action by three (3) months, i.e., up to and including May 20, 2002. Should any additional fees be required to consider this Amendment, Applicants authorize the Assistant Commissioner to charge such fee or credit any overpayment to Deposit Account No. 50-0320.

Accordingly, and in view of the foregoing, reconsideration of these rejections is requested and favorable action is solicited.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

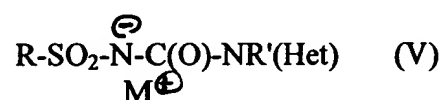
1. (Amended) A combination [of] comprising an anionic agrochemically active compound [with] and a cationic polymer having a main chain, said compound and said polymer [with formation of electrostatic interaction] electrostatically interacting with each other, wherein [all or at least some of this] at least part of said polymer is constructed of [monomers having] monomer units comprising cationic groups [which contain in particular] comprising quaternary nitrogen atoms, [where] wherein the percentage of monomer units which do not contain any cationic groups[, in particular no quaternary nitrogen atoms,] is at most 90% by weight[, preferably at most 50% by weight], and the molecular weight of the polymers is < 10,000 if the quaternary nitrogen atoms are arranged exclusively outside the main chain of the polymer.

2. (Amended) The combination as claimed in claim 1, wherein the active compound is selected from the group consisting of herbicides, fungicides, insecticides, growth regulators, safeners, molluscicides, acaricides and nematocides[, in particular herbicides, growth regulators and safeners].

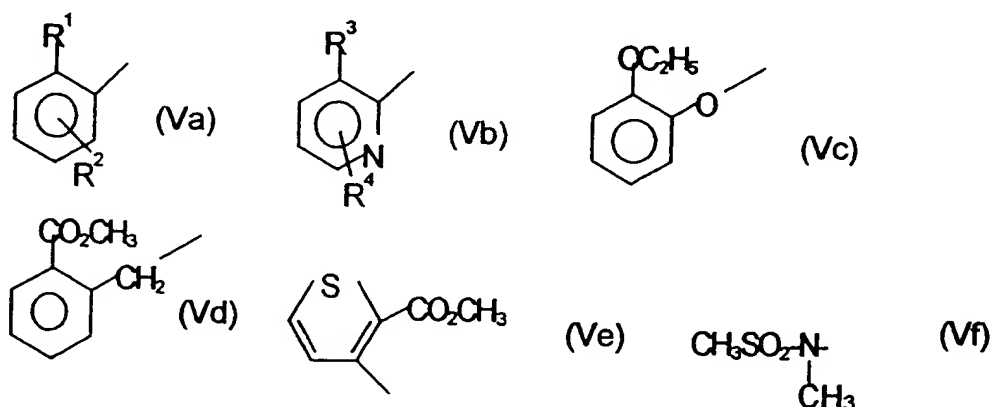
3. (Amended) The combination as claimed in claim 2, wherein the herbicides are selected from the group consisting of ALS inhibitors [such as sulfonylureas], hydroxybenzonitriles, [preferably bromoxynil and ioxynil,] aryloxyalkylcarboxylic acids, [preferably MCPA, 2,4-D, CMPP, 2,4-DP, 2,4-DB,] (hetero)aryloxyaryloxyalkylcarboxylic acids, [preferably fenoxaprop-p-ethyl, dichlofop-methyl, clodinafop-propargyl, fluazifop,] HPPDO inhibitors, [preferably mesotrione or sulcotrione], triazines, and cyclohexanedione oximes, [preferably sethoxidim, clethodim or trialoxidim, the growth regulators are selected

from the group consisting of indolylacetic acid, indolylbutyric acid and auxins and the safeners are selected from the group consisting of mefenpyr-diethyl and 5,5-biphenyl-2-isoxazoline-3-carboxylic acid, and their respective derivatives, such as acids, esters and salts] and derivatives thereof.

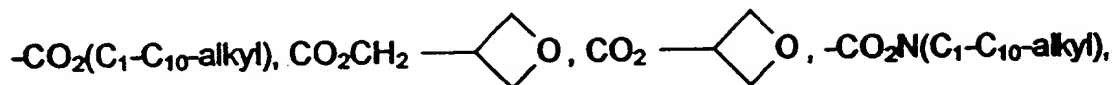
4. (Amended) The combination as claimed in claim 3, wherein the sulfonylureas correspond to the formula (V)



[in which] wherein  $\overset{\oplus}{\text{M}}$  is a [suitable] cation, [preferably an alkali metal ion or an ammonium ion, which may or may not contain] optionally containing organic substituents[, most preferably Na, K, ammonium, tetraalkylammonium, tetraalkylolammonium or monoalkylammonium ion], R' is hydrogen or a (C<sub>1</sub>-C<sub>10</sub>)-alkyl radical, [preferably hydrogen or methyl,] R is a radical selected from the group consisting of the compounds corresponding to formulae (Va) to (Vf)



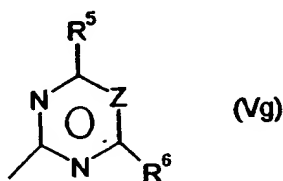
[in which] wherein R<sup>1</sup> is selected from the group consisting of



SO<sub>2</sub>(C<sub>1</sub>-C<sub>4</sub>-alkyl), CF<sub>3</sub>, -O(C<sub>1</sub>-C<sub>10</sub>-alkyl), -OCH<sub>2</sub>CH<sub>2</sub>Cl, CH<sub>2</sub>CH<sub>2</sub>CF<sub>3</sub>, and halogen[, preferably Cl or F],

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, independently of one another are H, CH<sub>3</sub>, -OH, -O(C<sub>1</sub>-C<sub>10</sub>-alkyl), -NH(C<sub>1</sub>-C<sub>10</sub>-alkyl), -N(C<sub>1</sub>-C<sub>10</sub>-alkyl)<sub>2</sub>, NHCHO, -NHCO<sub>2</sub>(C<sub>1</sub>-C<sub>2</sub>-alkyl), -CH<sub>2</sub>NHSO<sub>2</sub>CH<sub>3</sub>, or halogen, [preferably F, Cl, Br or I,]

Het is a radical of the formula



[in which] wherein R<sup>5</sup>, R<sup>6</sup> independently of one another are halogen, [preferably F or Cl,] -O(C<sub>1</sub>-C<sub>4</sub>-alkyl), C<sub>1</sub>-C<sub>4</sub>-alkyl, -NH(C<sub>1</sub>-C<sub>4</sub>-alkyl), -N(C<sub>1</sub>-C<sub>4</sub>-alkyl)<sub>2</sub>, -OCH<sub>2</sub>CF<sub>3</sub>, -OCHCl<sub>2</sub>, and Z is N or a CH group.

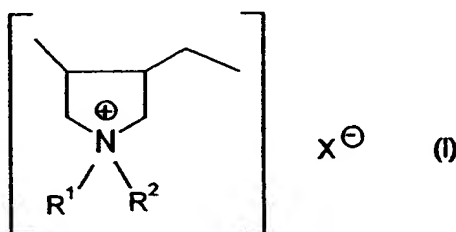
5. (Amended) The combination as claimed in claim 1, wherein the polymer is soluble, dispersible or emulsifiable in water and/or organic solvents, [preferably soluble in polar



protic and/or polar aprotic organic solvents and/or water, preferably soluble in water,] and has an absorption rate or penetration rate of < 50% in 24 h.

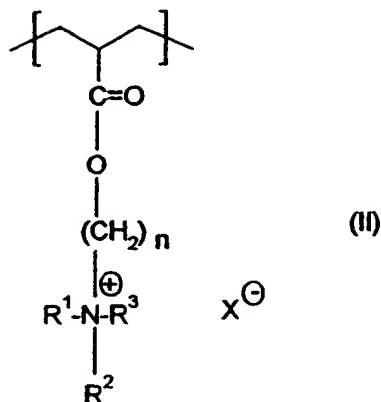
6. (Amended) The combination as claimed in claim 1, wherein the molecular weight of the polymer is about  $\geq 500$ [, preferably about 1 000 to 1 000 000, ] and the polymer is employed in a weight ratio to the active compound of from about 0.001:1 to about 1:0.001[, preferably from 0.01:1 to 1:0.01, most preferably from 0.1:1 to 1:0.1].

7. (Amended) The combination as claimed in claim 1, wherein the polymer contains monomer units which are selected from the group consisting of the units of the formula (I)



in which  $\text{R}^1$  and  $\text{R}^2$  independently of one another are selected from the group consisting of hydrogen, linear and branched  $\text{C}_1$ - $\text{C}_8$ -alkyl groups, linear and branched  $\text{C}_1$ - $\text{C}_5$ -alkylol groups, cyclopentyl and cyclohexyl groups

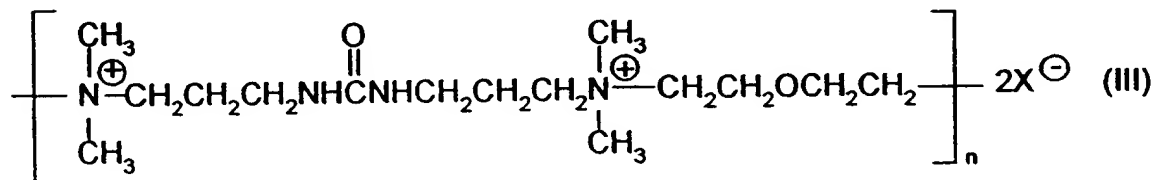
and the units of the formula (II)



in which  $n$  is an integer from 1 to 10[, preferably from 2 to 5, ] and the substituents  $\text{R}^1$  to  $\text{R}^3$  are independently of one another selected from the group consisting of hydrogen, linear and branched  $\text{C}_1\text{--C}_8$ -alkyl groups, linear and branched  $\text{C}_1\text{--C}_5$ -alkylol groups, cyclopentyl and cyclohexyl groups,

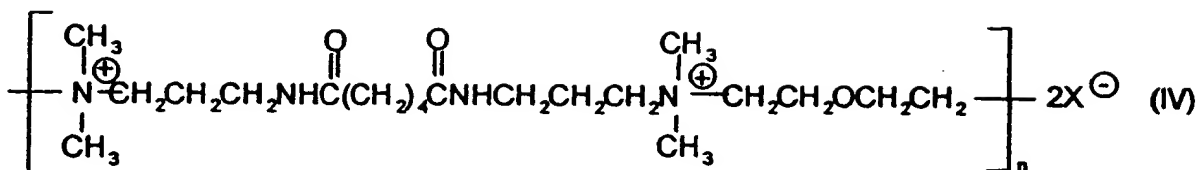
and where  $\text{X}^-$  is the anion of an acid of organic or inorganic origin[, preferably a carboxylate, sulfate, carbonate, sulfonate or halide].

8. (Amended) The combination as claimed in claim 1, wherein the polymer is of the formula (III)



in which  $n$  is an integer from 3 to 50, [preferably on average 6,]

or of the formula (IV) below



in which n is an integer from 10 to 200, [preferably on average 100,] and X<sup>-</sup> is in each case the anion of an acid of organic or inorganic origin[, preferably a carboxylate, sulfate, carbonate, sulfonate or halide].

11. (Amended Twice) [The use of a combination as claimed in claim 1 for suppressing antagonistic interactions during the application of agrochemically active compounds for controlling harmful plants] A method for suppressing antagonistic interactions in an agrochemical composition comprising at least two agrochemical compounds, comprising the step of applying to said agrochemical composition a cationic polymer having a main chain, wherein at least part of said polymer is constructed of monomer units comprising cationic groups optionally comprising quaternary nitrogen atoms, wherein the percentage of monomer units which do not contain any cationic groups is at most 90% by weight, and the molecular weight of the polymers is < 10,000 if the quaternary nitrogen atoms are arranged exclusively outside the main chain of the polymer.

12. (Amended Twice) [The use of a combination as claimed in claim 1 for increasing crop selectivity during the application of one or more agrochemically active compounds for controlling harmful plants] A method of increasing crop selectivity, comprising the step of applying the combination as claimed in claim 1 to said crop or to an environment within which said crop resides.

13. (Amended Twice) A method for controlling harmful organisms, [in particular harmful plants, which comprises] comprising the step of applying a combination as claimed in claim 1 to said harmful organism or to an environment within which said organism resides.

14. (Amended Twice) A process for preparing a combination as claimed in claim 1, [which comprises] comprising the step of combining the active compound [by customary processes which are known per se, preferably] by dissolving, stirring or mixing said active compound, with a [suitable] polymer as claimed in claim 1, and introducing this combination into the formulation[, if appropriate with] comprising other active compounds, adjuvants and additives.

15. (Amended) A method for controlling harmful organisms, [in particular harmful plants, which comprises] comprising the step of applying a formulation as claimed in claim 9 to said harmful organism or to an environment within which said harmful organism resides.

16. (Amended) A process for preparing a formulation as claimed in claim 9, [which comprises] comprising the step of combining the active compound [by customary

processes which are known per se, preferably] by dissolving, stirring or mixing said active compound, with a [suitable] polymer as claimed in claim 1, and introducing this combination into the formulation[, if appropriate with] comprising other active compounds, adjuvants and additives.